A Statewide Snapshot of Wisconsin's Forests

Robert Queen

The Northern Mixed Forest is composed of both broadleaf trees and conifers. Peninsula State Park.

DNR Photo Archives

The Southern Broadleaf Forest is mostly composed of broadleaf trees like this oak.

Wisconsin's Forests

In this assessment report, Wisconsin's forest resources are divided into two broad categories, the Northern Mixed Forest and the Southern Broadleaf Forest. These two overall forest types exist in Wisconsin because of the differences in the soil types and climate that support them and to which they have adapted over thousands of years.

These two regions meet in an area called the tension zone. The tension zone stretches across Wisconsin from northwest to southeast in an S-shape. The tension zone forms the northern boundary of many species' ranges, both plant and animal. From Polk and St. Croix Counties southeast to Milwaukee, the tension zone divides the state into the two major ecological regions. The northern region, the Northern Mixed Forest, is more closely related to the forests of northeastern Minnesota, northern Michigan, southern Ontario, and New England. The southern region, the Southern Broadleaf Forest, is warmer and is generally considered closer, ecologically, to the forests of Ohio and Indiana. The tension zone is a diverse area, where representative plant and animal species from both the Northern Mixed Forest and the Southern Broadleaf Forest types can be found, and a significant shift in vegetation occurs.

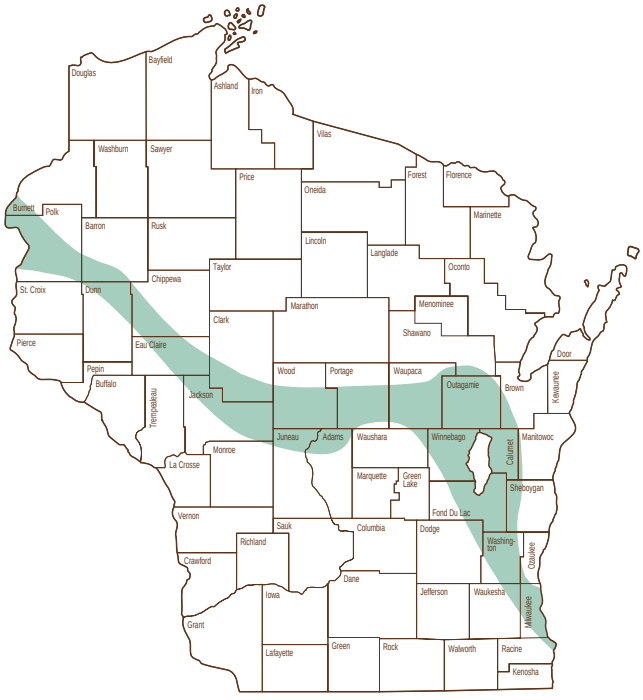


Figure 1

Map of Wisconsin's Tension Zone

Forest Area

Of Wisconsin's 35 million acres of land, about 16 million acres are forested. Forest area in Wisconsin has been steadily increasing since 1968, mostly due to the conversion of marginal agricultural land back to forests. Currently, Wisconsin's forests cover about 46% of the total land area of the state.

Since the last statewide forest assessment, which used data from 1983, Wisconsin's forestland has increased about 4%, or 640,000 acres. Most of this increase is accounted for in the northern area of the state. Forests from 20–80 years old experienced the largest increase in acreage.

Forest Types

The most abundant forest types in Wisconsin are hardwood forest types. Maple-basswood, aspen-birch, and oak-hickory are the most common. Maple-basswood accounts for 5.3 million acres, followed by aspen-birch forest type with almost 3.4 million acres, and oak-hickory with about 2.9 million acres. While 84% of Wisconsin's forests are hardwood types, there are also significant softwood types occupying large areas, especially in the north. Red pine, jack pine, black spruce, northern white cedar, and tamarack are the most common conifer forest types.

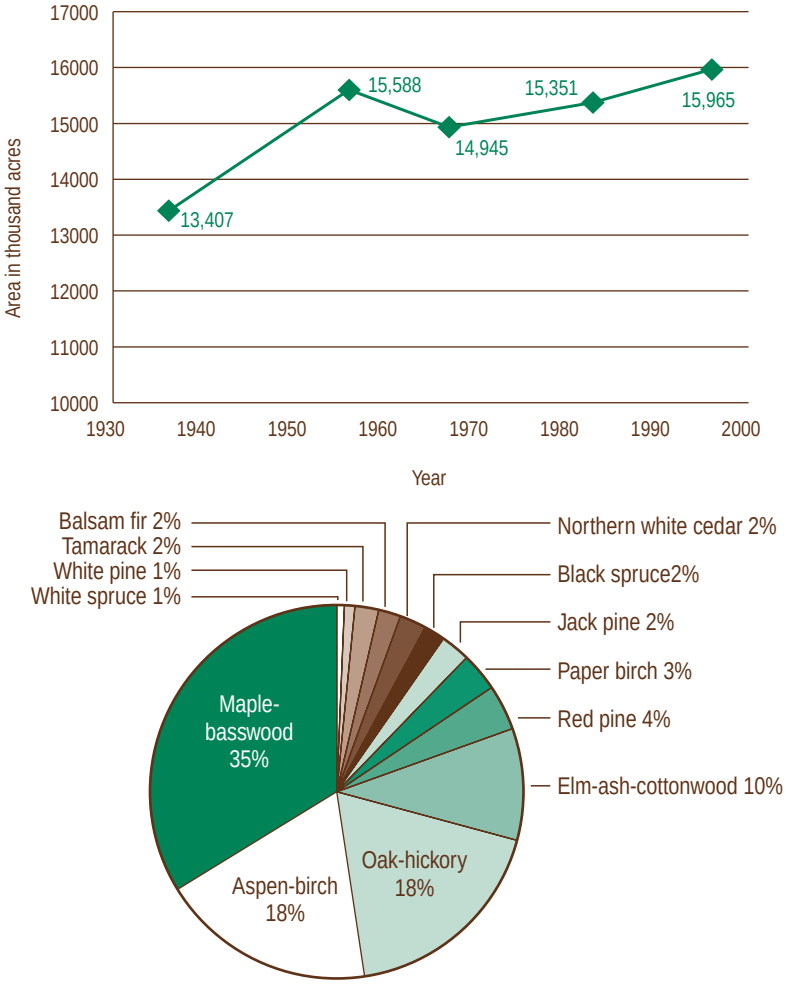


Figure 2

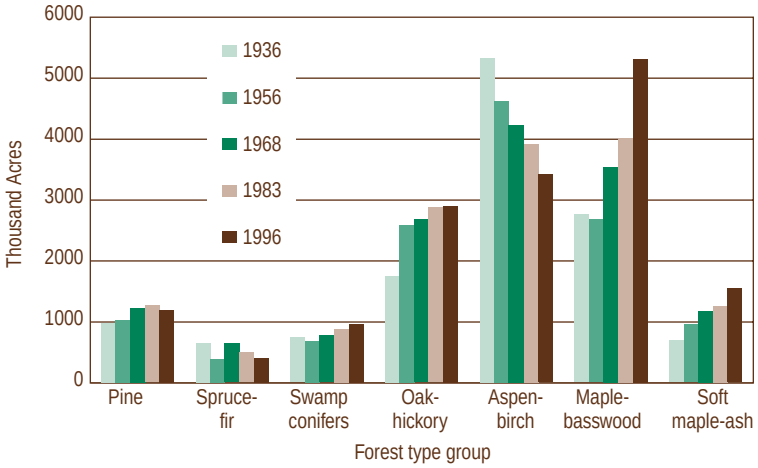
[top] Wisconsin forest area over time

Figure 3

[bottom] Wisconsin forest types, 1996

Figure 4

Wisconsin forest types over time



WHERE TO FIND DISCUSSION OF FOREST TYPES AND SPECIES GROUPS IN THIS REPORT:

Wisconsin's Northern Mixed Forests:

Wisconsin's Southern Broadleaf Forests:

Areas and relative proportion of various forest types have changed significantly over the last 70 years. Hardwood succession is very apparent. Since the first official statewide forest inventory in 1936, aspen-birch forest area has decreased steadily, although it is still much more common than at the beginning of the Cutover. The Cutover was the period of intense timber harvest in the Lake States, lasting about 40 years, from 1880–1920. Since 1936, maple-basswood, soft maple-ash, and oak-hickory forests have increased just as steadily. Conifer forest area has remained roughly constant over the last 70 years.

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Although early succession forest types, like aspen and birch, are much more common now than in the 1850s, they have been decreasing since the 1930s as the forests of Wisconsin have continued to recover from the Cutover period.

Curt Wilson

Most of Wisconsin's plantations are pine, accounting for about 4.5% of Wisconsin's total forestland. Waukesha County.

Plantations Over 95% of Wisconsin's standing forests are a result of natural regeneration. The remaining 4.5% of Wisconsin's forests are plantations. In this context, *plantations* refer to areas reforested through planting that are sufficiently productive to qualify as timberland. The planted species is not necessarily dominant. The majority of plantations are conifer types and located in the central and northern parts of the state.

Number of trees

Predictably, along with an increase in forest area, there has been a corresponding increase in number of trees. Between 1983 and 1996 trees over 10 feet tall increased by 1.4 billion individual trees. In 1996, there were about 9.8 billion trees in Wisconsin.

Timber Volume

Between the 1983 forest inventory and the 1996 forest inventory, overall growing stock volume in Wisconsin's forests has increased by almost 12%—about two billion cubic feet. In 1996, there were 18.5 billion cubic feet of growing stock volume, of which 4.4 billion were conifer, and 14.1 were hardwood. Along with this overall increase, the state's maples, oaks, basswood, ashes, white and red pines, white and black spruces, and balsam fir are some of the commercially important species whose growing stock volume increased. Aspen, paper birch, and jack pine volumes decreased between inventories.

During the same period, sawtimber volume increased dramatically—by over 30%, or 11 billion board feet. Sawtimber is the largest timber size class. These trees tend to be older, more economically valuable, mature seed-producers, and are important to the forest's structure. As Wisconsin's forests age, continued growth of sawtimber volume is likely.

Robert Queen

On average, sawtimber removals totaled 986 million board feet per year between 1983 and 1996, accounting for 59% of net annual growth. Skidder, Northern Highlands American Legion State Forest.

Robert Queen

New development along lakeshores is influencing Wisconsin's forests.

Growth and Removals

In Wisconsin, our forests are growing at a rate that significantly exceeds harvest. Between 1983 and 1996, average net annual growth exceeded harvests and other removals by almost 158 million cubic feet. During the period between inventories, average net annual growth was 490 million cubic feet. Average annual removals were 332 million cubic feet, about 68% of average net annual growth. Between 1968 and 1983, average annual removals were 45% of average net annual growth.

Average net annual growth of sawtimber in particular also exceeded average annual removals, resulting in a net increase in sawtimber volume between 1983 and 1996. Each year, on average, sawtimber volume increased 1.68 billion board feet. About 59% of that growth was offset by removals—986 million board feet each year. One important measure of sustainability is that the Wisconsin timber net growth:removals ratio is greater than one, statewide.

Robert Queen

Much of Wisconsin's forestland is being divided into smaller parcels and sold to new forest owners.

Ownership

Individual, private owners own the majority of Wisconsin's forestland, about 57%. The state owns just 5% of the forest and the federal government about 10%. In the public sector, counties and municipalities own the largest percentage—15% of Wisconsin's forestland, followed by forest industry 7%, private corporations 4%, and tribal lands 2%.

Ownership is increasingly important to Wisconsin forests. The demographics of Wisconsin forestland owners are changing, as are those owners' values and goals for their land. The increase in second homes and non-resident landowners has resulted in more forest owners of smaller parcels. Lakeshore

Robert Queen

Urban forest space is very important for ecological and aesthetic benefits.

development is another trend related to this phenomenon. This increase in second homes and non-resident landowners results in a significant increase in the number of individual private owners. Increased human presence in the forest has significant impact on the integrity of forest communities.

Between 1984 and 1997, the number of Wisconsin's non-industrial private owners increased 20% to about 262,000. Every year an average of 3,385 new parcels are carved out of Wisconsin's forested land base. As a result, ownership size is decreasing and development is increasing [Roberts. et. al., 1986 and Schmidt, 1997].

Urban Forests

Many of Wisconsin's residents associate most closely with urban forests. Urban forests surround people every day. The trees, lawns, landscape plantings, gardens, urban wildlife, and people of the cities compose the urban forest ecosystem. Wisconsin has about 1.7 million acres of urban forest, about 4.7% of the state's total land area. Statewide, the average urban canopy cover is 29% of the urban area. In the northern region, urban canopy cover is closer to 38%, in the south it is about 26%.

Biodiversity

Wisconsin's forests are significant reservoirs of biodiversity. Our forest ecosystems harbor a wide array of species. Wisconsin's forests themselves are very diverse—including many different forest types. Over 657 vertebrates live in Wisconsin, and over 1,800 native vascular plants are found in the state.

DNR Photo Archives

Wisconsin's forests are important reservoirs for biodiversity. Fisher.